UNITED STATES PATENT AND TRADEMARK OFFICE

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10/687,525	10/15/2003	David J. McIntyre	MCIN121603	5235

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 May 2004*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/22/2004; 5/17/2004*.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1.   The information disclosure statement (IDS) submitted on May 17, 2004 was filed

after the mailing date of May 17, 2004.   The submission is in compliance with the

provisions of 37 CFR 1.97. Accordingly, the examiner is considering the information

disclosure statement.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

3.   **Claims 1-13 and 15-28** are rejected under 35 U.S.C. 103(a) as being

unpatentable over Cok et al., hereinafter, Cok (U.S. Patent number 6,104,839) in view

of Qi, thereinafter, Qi (U.S. Publication number 2001/0056338 A1) and further in view of

Romanik et al., "Romanik" (U.S. Patent number 6'990, 255 B2).

        Regarding claim 1, Cok discloses **method for simulating defect to a user**

comprising obtaining an input digital image (see item 100, fig.3); **selecting a visual**

defect filter set to apply to the input digital image (see item 102, fig.3, item 106, fig.3

and column 1, lines 63-67, i.e., input digital image referred as to source image and set

window operator referred as to defect filter); **processing the input digital image with**

the visual defect filter (see item 12, fig.1, item 106, fig.3); **and displaying** (see item

24, fig.1, and column 3, lines 44-45).

Cok does not disclose **simulating a visual defect.**

However, Qi discloses **simulating a visual defect** (see page 1, paragraph [0007] lines 2-4).

It would have been obvious to someone of the ordinary skill in the art at the time when the invention was made to use Qi's simulating a visual in Cok's method of obtaining an input digital image because it will allow seeing clearly, [Qi's, see page 1, paragraph [0007] lines 2-5].

Still, Cok and Qi do not disclose **generate a modified digital image.**

However, Romanik discloses **generate a modified digital image is determined by user's point of fixation** (see column 2, lines 10-12).

It would have been obvious to someone of the ordinary skill in the art at the time when the invention was made to use Romanik's generate a modified digital image in Cok's and Qi's method for simulating a visual defect to a user because it will allow to adjust the size of an image, [Romanik's, see column 2, lines 5-7].

Regarding claim 2, Cok discloses **the method as recited in Claim 1, wherein the input digital image is stored in the memory of a computer** (see item 14, 20, fig.1).

Regarding claim 3, Cok discloses **the method as recited in Claim 1, wherein the input digital image is a live image captured by the user** (item 20, 22, fig.1).

Regarding claim 4, Cok discloses **the method as recited in Claim 1, wherein the input digital image is captured via video camera** (item 20 and 22, fig.1 and column 3, lines 34-36).

Regarding claim 5, Cok discloses **the method as recited in Claim 4, wherein the video camera is mounted on the head of the user** (see column 3, lines 43-45).

Regarding claim 6, Cok discloses **the method as recited in Claim 1, wherein the input digital image is captured** (see item 20 and 22, fig.1) **and processed in stereo** (see item 12, fig.1).

Regarding claim 7, Cok discloses **the method as recited in Claim 1, further comprising storing the image in the memory of a computer** (see item 14, fig.1 and item 100, Fig.3).

Cok and Qi do not disclose **generate a modified digital image.**

However, Romanik discloses **generate a modified digital image** (see column 2, lines 10-12).

It would have been obvious to someone of the ordinary skill in the art at the time when the invention was made to use Romanik's generate a modified digital image in Cok's and Qi's method for simulating a visual defect to a user because it will allow to adjust the size of an image, [Romanik's, see column 2, lines 5-7].

Regarding claim 8, Romanik discloses **the method as recited in Claim 7, wherein the modified stored image is processed to represent various fields of view** (see column 2, lines 10-12).

Regarding claim 9, Qi discloses **the method as recited in Claim 8, further comprising tracking at least one of the user's eyes while the user views to determine the user's point of fixation** (see page 2, paragraph [0015] lines 5-8) and item 66, fig.13) **wherein the user's point of fixation guides the selection of an**

image from the set of stored preprocessed images (see item 61, fig.3) **in various**

fields of view.

Qi does not disclose **the modified image.**

However, Romanik discloses **the modified images** (see column 2, lines 10-12).

It would have been obvious to someone of the ordinary skill in the art at the time

when the invention was made to use Romanik's generate a modified digital image in

Qi's method for simulating a visual defect to a user because it will allow to adjust the

size of an image, [Romanik's, see column 2, lines 5-7].

Regarding claim 10, Qi discloses **the method as recited in Claim 1, further**

comprising tracking at least one of the user's eyes while the user views to

determine the user's point of fixation (see page 2, paragraph [0015] lines 5-8)

wherein the displayed image (item 65, fig.13) **is dynamically processed with the**

eye tracking data to maintain a constant orientation between the simulated visual

defect (see item 71, fig.13) and **the user's point of fixation** (item 66, fig.13).

Regarding claim 11, Romanik discloses **the method as recited in Claim 1,**

wherein the modified image is displayed in a wide field of view stereographic

display (see column 1, lines 27-28 and column 2, lines 10-12).

Regarding claim 12, Romanik discloses **the method as recited in Claim 1,**

wherein the modified image (see column 2, lines 10-12) **is displayed on a head**

mounted display.

Regarding claim 13, Romanik discloses **the method as recited in Claim 10, wherein the modified image is displayed on a see-through surface** (see column 2, lines 10-12).

Regarding claim 15, Romanik discloses **the method as recited in Claim 1 wherein the input image is modified** (see column 2, lines 10-12).

Romanik does not disclose **simulate a scotoma.**

However, Qi discloses **simulate a scotoma** (see page 1, paragraph [0007] lines 2-4, i.e., scotoma referred as to impairment of visual).

Regarding claim 16, Romanik discloses **the method as recited in Claim 1 wherein the input image is modified** (see column 2, lines 10-12).

Romanik does not disclose **simulate a cataract.**

However, Qi discloses a **simulating cataract** (see page 1, paragraph [0007] lines 2-4, i.e., cataract referred as to eye defect).

Regarding claim 17, Romanik discloses **the method as recited in Claim 1 wherein the input image is modified** (see column 2, lines 10-12).

Romanik does not disclose **to simulate a reduction in peripheral vision.**

However, Qi discloses **to simulate** (see page 1, paragraph [0007] lines 2-4) **a reduction in peripheral vision.**

Regarding claim 18, Cok discloses **a computer-readable medium having computer-executable instructions for performing the method recited in Claim 1** (see itme18, fig.1 and fig.3).

Regarding claim 19, Cok discloses **a computer-readable medium having computer-executable instructions for performing the method recited in Claim 9** (see item 18, fig.1 and fig.3 and column 4, lines 11-12).

Regarding claim 20, Cok discloses **a computer-readable medium having computer-executable instructions for performing the method recited in Claim 10** (see item 18, fig.1 and fig.3 and column 4, lines 11-12).

Regarding claim 21, Romanik discloses **a set of pre-modified digital images** (see column 2, lines 10-12).

Romanik does not disclose **embodied on a computer-readable memory medium generated to defect using the computer executable instructions as recited in Claim 18.**

However, Cok discloses **embodied on a computer-readable memory medium generated to defect using the computer executable instructions as recited in Claim 18** (see item 18, fig.1 and fig.3 and column 4, lines 11-12).

Romanik and Cok do not disclose **simulating a visual.**

However, Qi discloses **simulating a visual** (see page 1, paragraph [0007] lines 2-4).

It would have been obvious to someone of the ordinary skill in the art at the time when the invention was made to use Qi's simulating a visual in Cok's and Romanik's method of obtaining an input digital image because it will allow to understand clearly, [Qi's, see page 1, paragraph [0007] lines 2-5].

Regarding claim 22, Qi discloses **a method for simulating a visual defect to a user** (see item 71, fig.13 and abstract, lines 1-4) **comprising tracking at least one of the user's eyes while the user views an image to determine the user's point of fixation** (see page 2, paragraph [0015] lines 5-8); **simulate a visual defect** (see item 71, fig.13 and abstract, lines 1-4); **and determined by the user's point of fixation** (see page 2, paragraph [0015] lines 5-8) **which simulates a visual defect** (see item 71, fig.13 and abstract, lines 1-4).

Qi does not disclose **selecting a mask image and displaying the mask image to the user wherein the mask image position and generate two superimposed images.**

However, Cok discloses **selecting a mask image** (see column 4, lines 10-12) **and displaying the mask image to the user wherein the mask image position** (see column 3, lines 43-45 and column 4, lines 10-12).

It would have been obvious to someone of the ordinary skill in the art at the time when the invention was made to use Cok's selecting mask image in Qi's a method for simulating a visual defect to a user because it will allow identifying the defect regions, [Cok's, see column 4, lines 1-3].

Qi and Cok do not disclose **generate two superimposed images.**

However, Romanik discloses **generate two superimposed images** (see item 110, fig.1, and abstract, lines 1-5).

It would have been obvious to someone of the ordinary skill in the art at the time when the invention was made to use Romanik's generate two superimposed images in

Cok's and Qi's method for simulating a visual defect to a user because it will allow to

produce a composite image or combine images, [Romanik's, see column 3, lines 12-

18].

Regarding claim 23, Cok discloses **the method of Claim 22, wherein the mask**

image is displayed to the user on a see-through surface (see column 4, lines 8-12).

Regarding claim 24, Cok discloses **the method of Claim 22, further comprising**

obtaining an input digital image (see item 100, fig.3), **the mask image** (see column

4, lines 10-12) **with the input image and displaying** (see column 3, lines 43-45).

Cok does not disclose **merging image and simulate a visual defect.**

However, Romanik discloses **merging images** (see item 110, fig.1, and abstract,

lines 1-5).

It would have been obvious to someone of the ordinary skill in the art at the time

when the invention was made to use Romanik's merging images in Cok's   method for

simulating a visual defect to a user because it will allow displaying multiple images,

[Romanik's, see column 1, lines 45-46].

Cok and Romanik do not disclose **simulate a visual defect.**

However, Qi discloses **simulate a visual defect** (item 71, fig.13).

It would have been obvious to someone of the ordinary skill in the art at the time

when the invention was made to use Qi's simulate a visual defect in Cok's and

Romanik's method for simulating a visual defect to a user because it will allow to

understand clearly, [Qi's, see page 1, paragraph [0007] lines 2-5].

Regarding claim 25, Cok discloses **a computer system comprising a processor, a memory, and an operating environment, the computer system operable to perform the method as recited in Claim 1** (see item 10, 12 and 14, fig.1).

Regarding claim 26, Cok discloses **a computer system** (item 10, fig.1) **for defects to a user, the computer system comprising means for obtaining an input digital image** (see items 102, 106, fig.3 and column 1, lines 63-67, i.e., input digital image referred as to source image and defect filter referred as to set a window operator) **a memory, a processing unit** (see items 12 and 14, fig.1), **means of defect and a display device to display the image to the user to defect** (see item 22, fig.1 and column 3, lines 44-45).

Cok does not disclose **simulating visual and modifying the input image.**

However Qi discloses **simulating visual** (see page 1, paragraph [0007] lines 2-4).

It would have been obvious to someone of the ordinary skill in the art at the time when the invention was made to use Qi's simulating a visual in Cok's and Romanik's method of obtaining an input digital image because it will allow to understand clearly, [Qi's, see page 1, paragraph [0007] lines 2-5].

Cok and Qi do not disclose **modifying the input image.**

Romanik discloses **modifying the input image** (see column 2, lines 10-12).

It would have been obvious to someone of the ordinary skill in the art at the time when the invention was made to use Romanik's generate a modified digital image in

Cok's and Qi's computer system for simulating a visual defect to a user because it will allow to adjust the size of an image, [Romanik's, see column 2, lines 5-7].

Regarding claim 27, Qi discloses the computer system (fig.3) as recited in Claim 26, further comprising an eye tracking device (see item 71, fig.13), wherein the eye tracking device measures the user's point of fixation (see page 2, paragraph [0015] lines 5-8) while the user views the displayed image (item 65, fig.13) and wherein the eye tracking device is interfaced with the processing unit (item 61, fig.13).

Regarding claim 28, Cok discloses the computer system (see item 10, fig.1) as recited in Claim 26, wherein at least one of the system components is accessed remotely on a network (see column 3, lines 46-47).

4.   Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cok in view of Qi and further in view of Romanik as applied to claims 1, 22 and 26 above, and further in view of Martin et al., "Martin" (U.S. Patent number 5, 495, 305).

Regarding claim 14, Cok, Qi and Romanik do not disclose the method as recited in Claim 1, wherein the visual defect (see column 1, lines 63-65) is selected.

Cok, Qi and Romanik do not disclose selected from the group consisting of macular degeneration, albinism, amblyopia, aniridia, brain tumor, cataract, coloboma of the choroid, colorblindness, corneal irregularity, diabetic retinopathy, eclipse burn, glaucoma, hyphema hemorrhage, vitreous hemorrhage, pre- retinal hemorrhage, migraine, retinal tear and detachment, retinitis

pigmentosa, Stargardt's disease, strabismus, subluxation of lens, vascular

occlusion, branch retinal arteriole, central retinal occlusion, vitreous floaters and

the effects of therapeutic modalities.

However, Martin discloses **selected from the group consisting of macular**

degeneration, albinism, amblyopia, aniridia, brain tumor, cataract, coloboma of

the choroid, colorblindness, corneal irregularity, diabetic retinopathy, eclipse

burn, glaucoma, hyphema hemorrhage, vitreous hemorrhage, pre- retinal

hemorrhage, migraine, retinal tear and detachment, retinitis pigmentosa,

Stargardt's disease, strabismus, subluxation of lens, vascular occlusion, branch

retinal arteriole, central retinal occlusion, vitreous floaters and the effects of

therapeutic modalities (see fig.1-3 and see column 3, lines 15-16 and

45-51).

It would have been obvious to someone of the ordinary skill in the art at the time

when the invention was made to use Martin's macular degeneration in Cok's, Qi's and

Romanik's computer system for simulating a visual defect to a user because it is clearly

discussed, [Martin's see column 3, lines 15-16 and fig.1-3).

Conclusion

5.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aklilu k. Woldemariam whose telephone number is 571-270-3247. The examiner can normally be reached on Monday-Thursday 6:30 a.m-5:00 p.m EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexander Eisen can be reached on 571-272-7687. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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9/11/2007